Eisenmann and Farrand both agree with me that there must be 2 populations occurring in Suriname, a breeding one (specimens obtained between 26 February and 12 June) and a migrant one (specimens between 11 April and 11 August) the last population presumably originating in the temperate zone of southern South America and spending the austral winter within the tropics. All the migrant specimens are moulting their primaries (with numbers 5–8 being freshly full grown and the remainder in sheath, partly grown or old), which agrees with the southern hemisphere schedule of migratory swallows. The primaries run longer in these migrants and their weights average greater than in the Suriname breeding birds, the new feathers making the wings and tail look darker. On the other hand, none of the breeding birds (found to have enlarged gonads or taken in the nest burrow) has moulting primaries. In Dr. Eisenmann's opinion the race *caccabatus* was plainly based on the migratory southern population and not the breeding birds and is presumably, therefore, a synonym of the nominate *ruficollis*. This would leave the breeding birds unnamed, but in view of the fact that the size differences may be clinal and are not clearly marked, and in the absence of obvious colour characters, taxonomic recognition does not seem worthwhile or necessary.

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The taxonomic status of the Canary Islands Oystercatcher *Haematopus (niger) meadewaldoi*

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The taxonomic status of Meade-Waldo's Black Oystercatcher or Canarian Black Oystercatcher *Haematopus niger meadewaldoi* Bannerman (1913) of the Canary Islands remains an enigma. Apart from a white patch in the wing, the bird is similar in plumage and soft part colouration to the African Black Oystercatcher *H. moquini* (Bannerman 1913). Three hypotheses have been proposed to explain its taxonomic status: either it is a melanistic subspecies of *H. ostralegus* (Stresemann 1927); or a distinct subspecies of the African Black Oystercatcher *H. moquini* Bonaparte (1856) (Bannerman 1913, 1963); or individuals recorded in the Canary Islands represent long-distance vagrants

of the southern African population of *H. moquini* (Etchécopar & Huë 1964). This paper aims to examine these 3 hypotheses by considering (a) the extent of vagrancy and the distribution of extralimital records of *H. moquini*; (b) mensural and plumage differences between *moquini* and *meadewaldoi*; and (c) habitat preference and biology of the 2 populations.

TABLE 1

Synonomy of *Haematopus moquini* Bonaparte

Haematopus niger Cuvier 1816 *Regné Anim.* 1: 469—Cape of Good Hope. *Nec H. niger* Pallas 1811 *Zoogr. Ross.-Asiat.* 2: 131 = *H. bachmani* Audubon 1838 *Birds Amer.* ed. 4, pl. 427.

Haematopus ostralegus capensis A. Lichtenstein 1823 *Verz. Doubl. Zool. Mus. Berol.* p. 73—Cape of Good Hope. *Nomen nudum.*

Haematopus moquini Bonaparte 1856 *Comp, Rend. Acad. Sci. Paris* 43: 1020—Africa. *Nom. nov. pro H. niger* Cuvier *nec* Pallas. Type locality restricted to Cape of Good Hope by Traylor 1960 *Publ. Cult. Co. Diam. Ang.* 51: 147.

Haematopus capensis Sharpe in 1884 Sharpe & Layard's *Birds S. Africa* p. 672—Cape of Good Hope. By providing a description Sharpe made Lichtenstein's name available but its authorship and date is Sharpe 1884.

NOMENCLATURE

Meade-Waldo's Black Oystercatcher originally was referred to as *H. capensis,* now a synonym of *H. moquini* (Table 1) (Meade-Waldo 1889). Bannerman (1913), on the basis of 4 specimens collected between 1890 and 1913, named the form *H. niger meadewaldoi, H. niger* also now being a synonym of *H. moquini.* Stresemann (1927) and Peters (1934), on the contrary, considered both *moquini* and *meadewaldoi* to be subspecies of the European *H. ostralegus.* In recent literature, the Canary Island oystercatcher has been referred to as *H. moquini meadewaldoi* (Bannerman 1963, Vaurie 1965, King 1979).

VAGRANCY IN *H. moquini*

The breeding range of *H. moquini* extends from Seal Island, South West Africa/Namibia (26° 37′S, 15° 19′E) (Cooper *et al.* 1980) round the coast to Mazeppa Bay, Transkei (32° 29′S, 28° 39′E) (Summers & Cooper 1977).

The northern limit of its normal non-breeding range may be considered as the Hoanib estuary, South West Africa/Namibia (19° 30′S, 12° 50′E), where 9 birds were seen in October 1978 and January 1979 (R. Loutit *in litt.*). East of Transkei there are only 4 records which unequivocally refer to *H. moquini,* all in Natal, the most northerly being that of a single bird at Dawson's Rock (28° 38′S, 32° 18′E) on 31 July 1981 (D. Roberts *in litt.*).

Only 5 individual black oystercatchers have been seen in Africa north of the normal non-breeding range:- 3 in Angola:- 2 as far north as Lobito (12° 35′S, 13° 25′E) in May 1973 (Summers & Cooper 1977) and one at Foz do Cunene (17° 15′S, 11° 45′E) in January 1975 (W. R. J. Dean *in litt.*) (all seen by competent observers); and one, even more northerly, old record from the west coast of Africa, in Gabon (Hartlaub 1857). Vincent (1949) actually restricted the type locality of *H. moquini* to Gabon, based on the fact that this is the first locality cited; but Hartlaub's record is based on a Verreaux specimen according to Traylor (1960), and the specimen has not been traced and may no longer exist. Bannerman (1931) was noncommittal about this record, but it has been omitted by subsequent authors. It probably refers to

a mislabelled specimen from the Cape, where the Verreaux brothers had strong connections.

There are 2 records from the east coast of Africa outside the normal non-breeding range. Haagner (1948) lists the bird from Beira (20°S, 35°E), Mocambique, without details, a record which is considered by Clancey (1971) to refer to the European Oystercatcher *H. ostralegus*. Clancey does not justify his decision and in view of the northerly record on the west coast from Lobito, it seems possible that a vagrant might have reached Mocambique. A very strange record is from the Dahlak Archipelago, in the southern part of the Red Sea, where a black oystercatcher of some form was collected, but not preserved, by Rüppell (1845).

The paucity of extralimital records, all in excess of 4000 km distance from the Canary islands, renders it very unlikely that Canary Island birds are vagrant *H. moquini*. Adult breeding *H. moquini* are essentially sedentary, though juveniles may disperse some distance from their birthplaces (pers. obs.). No age class data are available for the extralimital mainland and Dahlak Island birds, but all specimens taken on the Canary Islands have been adults (Bannerman 1913).

MEASUREMENTS AND PLUMAGE

Bannerman (1913) based his separation of *meadewaldoi* solely on aspects of plumage and measurements, *meadewaldoi* being smaller and with a distinct white patch in the wing, a feature not shared by *moquini*. At the time, few specimens and hence few mensural data were available for *moquini*. More data are now available and comparative measurements of *moquini* and *meadewaldoi* are given in Table 2. The low probabilities (%) of each measurement of each specimen of *meadewaldoi* belonging to a bird from the southern African population of *moquini* demonstrate that although the 2 populations may be related at subspecific level, where size is not necessarily a critical factor, they definitely do not belong to the same population. Culmen/tarsus ratios for 17 species and subspecies of oystercatcher are detailed in Table 3. It is clear that *moquini* is an unusual oystercatcher in that both sexes are comparatively short billed; *meadewaldoi,* on the other hand, is relatively long billed and shows less variation between sexes than other black oystercatchers – a feature common to most of the pied *ostralegus* group.

Bannerman (1963), in describing *meadewaldoi,* noted that "The white patch formed by the basal portion of the inner webs of the primaries is very pronounced, while in the Cape bird (*moquini*) there is scarcely any white at the base of the quills though the primaries become lighter towards the base". Although *moquini* exhibits a pale patch in the wing (when seen from below) at certain times of the year, there is never, contrary to the opinion of Prater *et al.* (1977), a white patch in the wing. I have occasionally observed asymmetric partial albinism in the wing of *moquini*, but this never involves more than one or two feathers. The white patch in the wing of *meadewaldoi* is most evident in fresh plumage, whereas in *moquini* a pale patch is only evident as a result of feather wear and moult (Bannerman 1963, pers. obs.).

HABITAT PREFERENCE AND BIOLOGY

In southern Africa, *H. moquini* is primarily a species of rocky shores, especially undisturbed offshore islands, contrasting strongly with the preferred sandy and muddy foraging substrates of *H. ostralegus* (Hockey &

TABLE 2

Comparison of the culmen (exposed), tarsus and wing (flattened chord) measurements of *Haematopus moquini* and the 4 existing specimens of *meadewaldoi*. "P" is the probability of each measurement of each *meadewaldoi* specimen belonging to the southern African population of *moquini*.

	Culmen (mm)			Tarsus (mm)			Wing (mm)		
	length	*standard deviation units	P(%)	length	*standard deviation units	P(%)	length	*standard deviation units	P(%)
Males									
moquini	63.2 ± 2.81			56.1 ± 2.1			275.2 ± 5.2		
meadewaldoi (a)	72.5	3.3	0.1	54.0	1.0	31.7	262	2.5	1.2
(b)	77.0	4.9	<0.01	49.2	3.3	0.1	259	3.1	0.2
Females									
moquini	71.6 ± 2.6			57.8 ± 1.9			278.5 ± 5.1		
meadewaldoi (a)	79	2.9	0.4	52	3.1	0.2	250	5.6	<0.01
(b)	81	3.6	0.02	52	3.1	0.2	257	4.3	<0.01

*Standard Deviation Units = the difference between *moquini* means and individual *meadewaldoi* measurements divided by the *moquini* standard deviation of the mean.

TABLE 3

Culmen/tarsus ratios expressed as percentages for 17 species and subspecies of oystercatchers *Haematopus*.

	Ratio		Primary data source
	Males	Females	
Black forms			
moquini	112.7	123.9	This study
ater		136.0	Jehl 1978
fuliginosus opthalmicus	128.4	145.9	McKean 1978
f. fuliginosus	134.7	153.0	McKean 1978
unicolor	139.5	153.3	Baker 1975
ostralegus bachmani	141.6	160.6	Ridgway 1919
meadewaldoi	145.0	153.8	Bannerman 1913
Pied forms (*ostralegus*)			
chathamensis	132.2	143.0	Baker 1975
ostralegus	136.7	143.3	Prater *et al.* 1977
pitanay	138.5	144.1	Wetmore 1965
occidentalis	141.1	160.6	McKean 1978
leucopodus		159.9	Jehl 1978
frazari	142.7	149.9	Ridgway 1919
palliatus	143.1	150.2	Ridgway 1919
prattii	148.3	158.7	Ridgway 1919
galapagensis	158.8	156.2	Ridgway 1919
finschi	162.1	177.9	Baker 1975

Cooper 1982). It is highly territorial and almost always occurs in pairs (Hockey in press), normally laying 2 eggs, but not often fledging more than one chick, which may remain with its parents for several months after fledging (pers. obs).). So few ornithologists have ever seen *meadewaldoi* that information concerning its biology is very scanty. No nest has ever been reported and the breeding biology is unknown. It has been recorded on both rocky and sandy shores, though rocky shores are probably favoured, since these are dominant in the areas where the bird has been recorded (Bannerman 1922, 1963). It occurs in pairs, and natives reported to von Thanner in the early 20th century that often 3 birds were present together in the summer, suggesting a family group; but it appears that the Canary Islands population underwent a decline in the second half of the 19th century, and probably earlier, and was very rare by the beginning of the 20th century (Bannerman

1963). The reason for the decline is unknown, but it is possible that introduced mammalian predators, such as cats and rats, may have been the cause. Feral cats and other terrestrial mammals are known to prey upon *H. moquini* (Hockey in press). Subsequent to Bannerman procuring a specimen in 1913, there is only one sight record, a single bird seen in Tenerife in July 1968, the only previous record of its occurrence in Tenerife being by Du Cane Godman in 1872, a record previously doubted (Bannerman 1963, 1969). An expedition to the Canary Islands in 1970 failed to locate the bird and concluded that it was probably extinct (Lovegrove 1971).

DISCUSSION

Evidence presented here strongly suggests that the black oystercatchers of the Canary Islands are not vagrants of the southern African population of *H. moquini,* and, based on plumage and proportions, that the Canary Island bird is not a subspecies of *H. moquini.*

The question remains to be considered whether *meadewaldoi* represents an isolated melanistic population of the European Oystercatcher *H. ostralegus,* its geographically closest congener, as suggested by Stresemann (1927). Although albinism has been recorded in *H. ostralegus* and in the South Island Pied Oystercatcher *H. o. finschi* of New Zealand, there is no record of melanism in Palaearctic *ostralegus* subspecies. The Variable Oystercatcher *H. unicolor* of New Zealand and Frazar's Oystercatcher of central America *H. o. frazari* exhibit a range of plumages, but the phenomenon is restricted to these 2 species (Larson 1957, Baker 1973). Baker (1977) performed cluster analysis, based on 7 operational taxonomic units, on a number of oystercatcher populations and his results indicate considerable dissimilarity between *moquini* and *meadewaldoi.* However, his sample sizes were small and this can only be considered as a supporting argument in differentiating the two populations.

Larson (1957) suggested that all oystercatchers originated from Tertiary melanistic *Haematopus* populations in the Boreal area. With the exception of the American Black Oystercatcher *H. o. bachmani* (whose status as an *ostralegus* subspecies should be questioned – Heppleston 1973) and *meadewaldoi,* all other northern hemisphere oystercatchers are pied forms (*ostralegus*). The Atlantic and Pacific gene communication between Eurasian and North American populations was cut off by the middle Pliocene, and it is possible that *meadewaldoi* is (or was) a relict population of the original dark mutant of the Tertiary, perhaps related to *H.* (*o.*) *bachmani.* It is the only melanistic oystercatcher population in the Palaearctic region, probably surviving by virtue of freedom from competition with vigorous secondary pied mutants, and, if this is the case, then *meadewaldoi* represents the stock from which *moquini,* as well as other southern black forms, arose (see Heppleston 1973). The 2 populations have therefore probably been genetically isolated since the Pliocene. Reichenbach (1852) considered *moquini* discrete enough even to warrant generic status and created the genus *Melanibyx.* However, no subsequent authors have subscribed to this belief.

CONCLUSION

On the evidence presented here, I propose that *H. meadewaldoi* be accorded specific status and be referred to as *Haematopus meadewaldoi,* Meade-Waldo's Black Oystercatcher. As a corollary, *Haematopus moquini* must be treated binomially.

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Notes on the nesting of the Red-billed Curassow *Crax blumenbachii*

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On 15 November 1979 we had the rare opportunity to observe the Red-billed Curassow *Crax blumenbachii* at its nest in one of the last refuges of this rarest and least known curassow, the Sooretama Biological Reserve (Linhares, Espirito Santo, 19° 10′-19° 17′S, 40° 0′-40° 15′W). *C. blumenbachii* is a remarkable endemic of southeastern Brazil, previously found in southern Bahia, eastern Minas Gerais, Espirito Santo and northern Rio de Janeiro. No more than 12 skins are known (Vaurie 1968) and, except for the studies of Sick (1964, 1970), almost nothing is known of its habits.

The nest was sited 6 m up in an obliquely leaning tree, one of a group growing from the water at the edge of a lagoon. In shape and composition the nest resembled those of other species of *Crax* (Delacour & Amadon 1973), being a rather simple rounded platform constructed of thin sticks (2 mm in diameter and of irregular length), about 50 cm in diameter and solidly based on an arboreal termite nest. There were dry leaves and old feathers between the maze of sticks, especially near the centre of the nest. Although the platform was rather thick, the upper parts of the eggs were visible from the ground from one side. The whole nest, however, was shaded and well concealed by the surrounding foliage.

There were 2 eggs, white with rough shells stained by contact with the vegetable matter of the nest. They measured 92 x 61 mm and 91 x 64 mm and weighed 196 and 193 g respectively. Only the female was seen to incubate, the male usually keeping its distance. The female when incubating was extremely shy, flying silently away at our distant approach unless great care was taken and she once took 5 hours to return. When returning she surveyed the surroundings warily as she came closer, sometimes walking on the ground and sometimes climbing among the branches. When on the nest she became very inconspicuous, with the tail held horizontally and the neck retracted.

The only other information on the breeding of this species that we were able to obtain at Sooretama was that some birds had well-grown young (around 100 days old) at the time we found the nest with eggs. Additional information on the breeding of *C. blumenbachii* has been obtained from birds nesting in captivity (Teixeira & Antas 1982, Teixeira & Sick 1981).